PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TS 6315 PCT	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2004/052402	International filing date *(day/month/year)* 01.10.2004	Priority date *(day/month/year)* 01.10.2003
International Patent Classification (IPC) or national classification and IPC E21B43/10, E21B23/01, E21B17/10, E21B33/128		
Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.et		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *sent to the applicant and to the International Bureau)* a total of 3 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the opinion
☐	Box No. II	Priority
☒	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
15.07.2005	04.10.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Schouten, A Telephone No. +31 70 340-4088

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/052402

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
   - ☐ international search (under Rules 12.3 and 23.1(b))
   - ☐ publication of the international application (under Rule 12.4)
   - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages	
1-11	as originally filed
Claims, Numbers	
1-15	received on 04.07.2005 with letter of 04.07.2005
Drawings, Sheets	
1/5-5/5	as originally filed

   ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
   - ☐ the description, pages
   - ☐ the claims, Nos.
   - ☐ the drawings, sheets/figs
   - ☐ the sequence listing *(specify)*:
   - ☐ any table(s) related to sequence listing *(specify)*:

* *If item 4 applies, some or all of these sheets may be marked "superseded."*

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 16

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 16

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form	☐	has not been furnished
	☐	does not comply with the standard
the computer readable form	☐	has not been furnished
	☐	does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ See separate sheet for further details

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	4,6,7
	No:	Claims	1-3,5,8-14
Inventive step (IS)	Yes:	Claims	4,6,7
	No:	Claims	1-3,5,8-14
Industrial applicability (IA)	Yes:	Claims	1-14
	No:	Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item III.

Claim 15 contains a reference to the drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.

Re Item V.

1 The following document is referred to in this communication:
D1 : WO 03/008760 A (SHELL CANADA LTD ;BOSMA MARTIN GERARD RENE (NL); CORNELISSEN ERIK) 30 January 2003 (2003-01-30)

2 INDEPENDENT CLAIM 1

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.
The document WO 03/008760 discloses on page 8, line 31 - page 9, line 17 and in Fig. 3A-3C (the references in parentheses applying to this document):

An assembly for use in a wellbore (1) formed in an earth formation (3), comprising an expandable tubular element (6) and an outer structure (64, 60, 17) having first (64) and second (17) portions arranged at a distance from each other, said portions (64, 17) being restrained to the tubular element (6) in a manner that said distance changes as a result of radial expansion of the tubular element (6), the outer structure (64, 60, 17) further having a third portion (60) arranged to move radially outward upon said change in distance between the first and second portions (64, 17), wherein said radially outward movement of the third portion (60) is larger than radially outward movement of the tubular element (6) as a result of radial expansion of the tubular element (6), wherein the tubular element (6) is susceptible of axial shortening upon radial expansion thereof, and wherein said first (64) and second (17) portions of the outer structure (64, 60, 17) are connected to the tubular element (6) at respective locations axially spaced from each other.

3 DEPENDENT CLAIMS 2-3, 5, 8-14

Dependent claims 2-3, 5, 8-14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT) for the following reasons:

Claim 2-3, 5 and 8-14: see WO 03/008760 page 8, line 31 - page 9, line 17 and Fig. 3A-3C.

Re Item VIII.

The terms "restrained" and "unrestrained" used in claims 1 and 5 are vague and unclear, thereby rendering the definition of the subject-matter of said claims unclear, Article 6 PCT.

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(54) NEW CLAIMS

1. An assembly for use in a wellbore formed in an earth formation, comprising an expandable tubular element and an outer structure having first and second portions arranged at a distance from each other, said portions being restrained to the tubular element in a manner that said distance changes as a result of radial expansion of the tubular element, the outer structure further having a third portion arranged to move radially outward upon said change in distance between the first and second portions, wherein said radially outward movement of the third portion is larger than radially outward movement of the tubular element as a result of radial expansion of the tubular element, wherein the tubular element is susceptible of axial shortening upon radial expansion thereof, and wherein said first and second portions of the outer structure are connected to the tubular element at respective locations axially spaced from each other.

2. The assembly of claim 1, wherein the third portion is arranged to move radially outward as a result of a decrease in distance between the first and second portions

3. The assembly of claim 1 or 2, wherein the third portion is arranged to move radially outward by virtue of radially outward bending of the third portion.

4. The assembly of claim 1, wherein said first and second portions of the outer structure are welded to the tubular element at said respective locations axially spaced from each other.

5. The assembly of claims 1 or 2, wherein said tubular element is an inner tubular element and the outer structure is an outer expandable tubular element arranged around the inner tubular element, and wherein the outer tubular element, when unrestrained from the inner tubular element, is susceptible to less axial shortening as a result of radial expansion than the inner tubular element.

6. The assembly of claim 5, wherein the outer tubular element is provided with a plurality of openings in the wall thereof, said openings overlapping each other in axial direction.

7. The assembly of claim 6, wherein said openings are slots provided in the wall of the outer expandable tubular element, the slots extending in substantially axial direction.

8. The assembly of any one of claims 5-7, wherein said first and second portions are the respective end portions of the outer tubular element.

9. The assembly of any one of claims 5-8, wherein an annular space is formed between the inner tubular element and the outer tubular element upon radial expansion of the inner tubular element, said space being filled with a fluidic compound.

10. The assembly of claim 9, wherein said space is filled with a hardenable fluidic compound.

11. The assembly of claim 10, wherein a flexible layer of sealing material is arranged around the outer tubular element.

12. The assembly of claim 1, wherein the outer structure includes at least one elongate member extending in axial direction of the tubular element.

13. The assembly of claim 12, wherein the outer structure includes a plurality of said elongate members regularly spaced along the circumference of the tubular element.

14. The assembly of claim 12 or 13, wherein each said elongate member is a metal bar.

15. The assembly substantially as described hereinbefore with reference to the drawings.

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